



**İZMİR EKONOMİ ÜNİVERSİTESİ**

# **The Exchange Rate and Tourism**

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## 1. Abstract

This paper investigates the relationship between the average expenditure per tourist which is calculated as total travel incomes divided by the total number of departing visitors, the exchange rate and inflation of package holidays by using OLS method. The analysis has covered the period of 2005 – 2018 on a monthly basis. The empirical results have stated that the exchange rate volatility and the inflation of package holidays have a negative and statistically significant effect on the average expenditure per tourist.

## 2. Introduction

On 15 August 1971, the United States has terminated convertibility of the US dollar to gold, effectively bringing the Bretton Woods system to the end and rendering the dollar a fiat currency. This action created the situation in which the U.S. dollar became a reserve currency used by many states. At the same time, that has made many fixed currencies free-floating which is a turning point for the international monetary system. Since then, the exchange rate, the value of one country's currency in relation to another currency, has become one of the determinants of sustainable internal and external balances of the economy also, a good indicator of competitiveness a country's goods and services as compared with the rest of the world. Exchange rate volatility refers to the tendency for foreign currencies to appreciate or depreciate in value, thus affecting the profitability of foreign exchange trades. The volatility is the measurement of the amount that these rates change and the frequency of those changes. There are possible sources of the exchange rate volatility that fundamentally important variables. For instance, the interest rates (both domestic and foreign), price levels (the level of inflation) and the balance of payments. However, the variations in the exchange rate are not only resulting from changes in those variables. The sociopolitical and geopolitical conditions in the given country or in the dominant actors of the global economy can be the answer to the fluctuations.

Moreover, the led-liberalization policies that have been developed by the International Monetary Fund (IMF) to increase the pace of globalization process and to enhance the growth and the stability by increasing the national savings in the developing countries. This had been coupled with technological developments that facilitates the movements of billions of currencies to be transferred to another country in a few seconds. By easing the currency speculation and spillovers in return, increasing global integration caused the exchange rate volatility to increase especially for developing countries. Thus, contrary to the main aim of those policies some of the countries have ended up speculative capital movements and instability in their economies. Such as Mexican peso crisis (1994-95), Brazilian real crisis (1999) and the Turkish lira crisis of 2001.

Since then, the Turkish economy has been more fragile and experienced depreciation in the currency which has accompanied by the increased volatility. For the following years, Turkey has experienced a different type of economic packages which made the situation worse in terms of economic welfare. At the same time, the rent-seeking behavior pattern of the country has become the main attitude over the years and the country has become dependent on short term capital gains. After that, both private and the public sector have ended up with high level of debts thanks to ultimate decision-makers of the country.

Especially, the tourism sector has affected in a bad way because of the exchange rate volatility and inflation both. One of the most important purposes of attracting tourists is the amount that tourists spend. The share of travel and tourism spending or employment in the equivalent economy-wide concept in the published national income accounts or labor market statistics in 2017, contribution of travel and tourism to GDP (% of GDP) for Turkey was 11.6 %.

(Figure 2.1)



Figure 2.1 : Total Travel Incomes of Turkey [2003 – 2019]

The total travel revenues in Turkey averaged 1.818,60 USD million from 2003 until 2019, reaching an all-time high of 4.947 USD Million in August of 2014 and a record low of 79 USD Million in February of 1990. Also, the total spending of international tourists between 2015-2016 has dropped by 8.6 million USD which was the chaotic period specifically for Turkey and also to the world. Turkey was hit by multiple the terrorist attacks during that time which decreased the number of tourists dramatically. (Figure 2.2) Because of those kinds of shocks that affects the number of tourists, in the model, the average expenditure per tourist is used instead of total travel income.

(Figure 2.2)

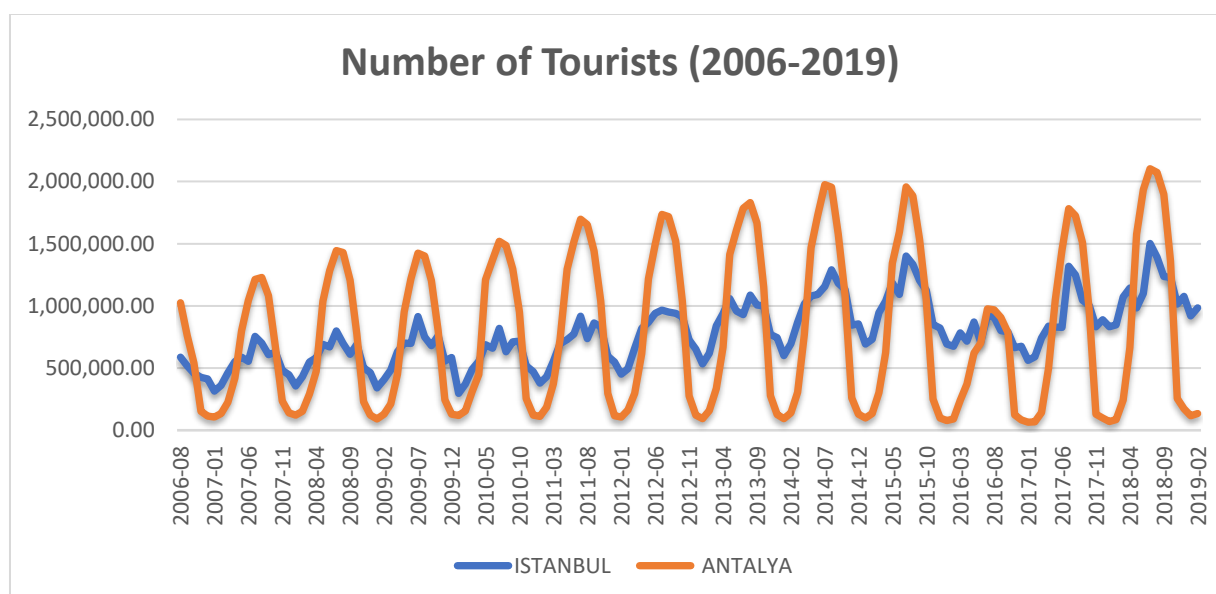


Figure 2.2 : Total Number of Tourists in Istanbul and Antalya [2006 – 2019]

(Figure 2.3)

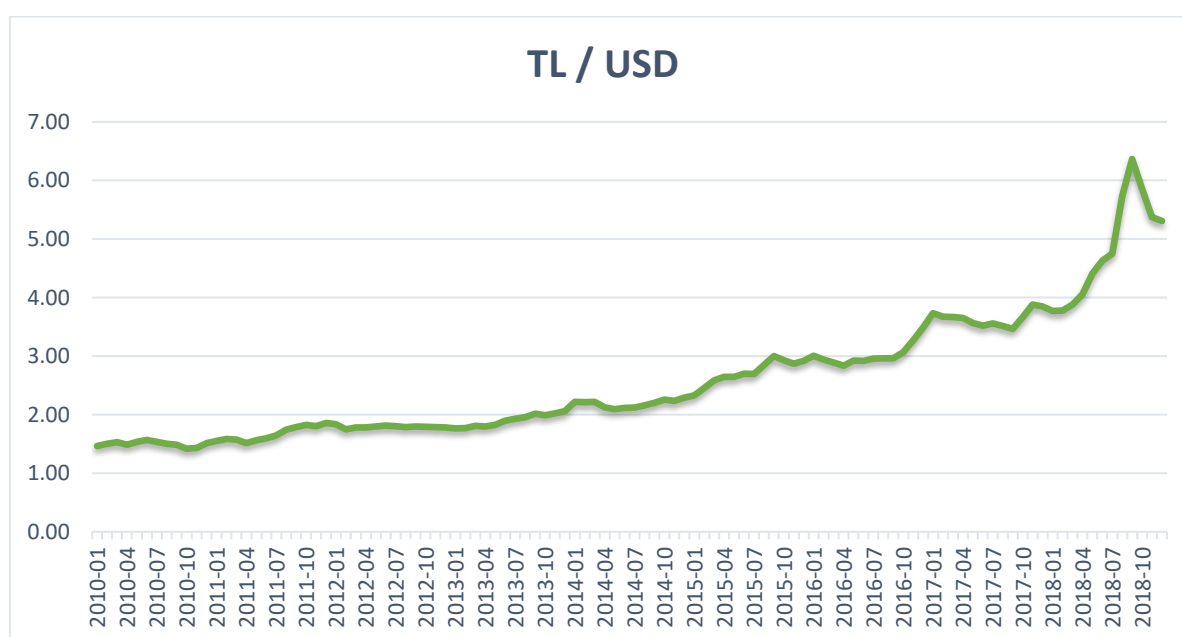


Figure 2.3 : The Exchange Rate Fluctuations [2010 - 2018]

The recent shock, during the summer months of 2018, the Turkish assets have experienced a massive sell-off thanks to investor fears over the Turkish Central Bank's (TCBM) independence and a diplomatic fight between Turkish President Recep Erdogan and Washington. The lira has fallen around 40 percent in value against the dollar since the beginning of 2018. Some of the economists have interpreted the situation as a "turbulence". Which can be observed in the table above as well (Table 2.3).

Following those structural changes, theoretical and empirical discussions were held by policymakers and researchers regarding the relationship between exchange rate volatility and international trade flows or trade, employment, output level and investment decisions for numerous countries.

### 3.Literature Rewiew

- Achouak Barguellil, Ousama Ben-Salha and Mourad Zmami in “Exchange Rate Volatility and Economic Growth (June 2018) ” have stated that the generalized autoregressive conditional heteroskedasticity-based measure of nominal and real exchange rate volatility has a negative impact on economic growth. Also, the effect of exchange rate volatility depends on the exchange rate regimes and financial openness, that is, volatility is more harmful when countries adopt flexible exchange rate regimes and financial openness.

- George Agiomirgianakis, Dimitris Serenis and Nicholas Tsounis in “Exchange Rate Volatility and Tourist Flows into Turkey(2014)” examined the effects of Exchange Rate Volatility on tourist flows into Turkey for the period of 1994-2012 and their results show that (i) there is a negative relationship between exchange rate volatility and tourist inflows into Turkey; (ii) there is a negative impact of the relative price ratio on the tourist flows indicating that relatively expensive places deter tourist arrivals, given the keen international competition among alternative destinations; (iii) GDP per capita at tourist origin, measured in Purchasing Power Parities, exerts positive influence on tourist flow.

- Martin Falk in his paper-The sensitivity of winter tourism to exchange rate changes: Evidence for the Swiss Alps, investigated the impact of the appreciation of the Swiss franc on international tourism in Swiss Alpine resorts, city and lake destinations using annual data for winter seasons 2007/2008 to 2010/2011 . Using median regression models, he found that the nominal and real appreciation of the Swiss franc has a large and significantly negative impact on international tourism demand in Alpine destinations during winter months. The elasticities of the relative price (to those of competing countries) range between -3.0 for foreign hotel nights and -2.1 for foreign hotel arrivals. In contrast, the real exchange rate effect is much lower in absolute terms for city and lake destinations. The results are not sensitive with respect to different measures of international tourism demand (arrivals, hotel nights and the length of stay). Income elasticities are also significant and large with values of two and higher. In general, these findings are robust to alternative estimation methods (i.e., median regression, robust regression method and ordinary least squares in first differences).

- Anthony G. Webber,(2001) in “Exchange Rate Volatility and Cointegration in Tourism Demand” investigated the long-run demand for Australian outbound leisure tourism during the period 1983 (Q1) to 1997 (Q4) for nine major tourism destinations. The study is unique in an international context by using exchange rate volatility as an explanatory variable, while it is unique in an Australian context by using a composite substitute price variable. The estimation and hypothesis-testing processes are undertaken using both the Johansen and Engle and Granger procedures. The variance of the exchange rate was found to be a significant determinant of long-run tourism demand in 50% of estimates. Real disposable income and substitute prices were found to have inelastic long-run effects on tourism, while the long-run relative price elasticity tended to differ widely across countries. Indonesia was the only country to find that the exchange rate has a significantly different impact on tourism than relative prices.

#### 4.Data / Methodology

In the analysis, there will be 3 variables in total that are going to be used and data of tourism sector will be accepted as average expenditure per tourist which is calculated as total travel incomes divided by the total number of departing visitors. Total travel incomes consist of three different parts which are total marina expenditures, foreign visitors travel incomes and citizen visitors travel incomes. That makes the dependent variable of the model-the average expenditure per tourist, more useful and reliable than the total travel income which is more correlated with the number of tourists that is highly volatile over time. The consumer price index data(2003 base year) is going to be used for inflation. At the same time, CPI data that represents the inflation of package holidays is one of the most popular ways of having a holiday in Turkey. Especially, in the cities that have shores in the mediterranean sea. For the exchange rate volatility, the TL/USD (US Dollar buying) data is going to be used in the model. Those two variables are the independent variables of the model and the logarithm of all variables, including the dependent one in the model is taken for simplicity purposes.

The data is gathered from EVDS (Electronic Data Delivery System by the Central Bank of the Republic of Turkey) which provides better dissemination of statistical products and allows computer-to-computer exchange in an easily accessible, understandable, interactive and reusable manner. Also, it facilitates the operations when the data is used in the Eviews and for the other platforms as well. By the help of these particular data, the OLS (Ordinary Least Squares) method is used for the econometric analysis which is time series. The time period is from 2005 to 2018 on a monthly base which starts from January 2005 to December 2018.

#### 4.1.The model :

$$\text{Inaepc} = \beta_0 + \beta_1 \text{Intl/usd} + \beta_2 \text{Incpi\_ph} + \varepsilon \quad (\text{EQ 1.0})$$

Representations of the variables in the model as follows ;

- aepc : the Average Expenditure per Tourist = total marina expenditures + foreign visitors travel incomes + citizen visitors travel incomes / total number of departing visitors
- tl/usd : the exchange volatility
- cpi\_ph : the inflation for package holidays
- $\varepsilon$  : the error term

#### 5.Econometric Results

First of all, by the help of the regression equation (EQ 1.0) above the relationship between the variables which are the dependent and independent ones-(aepc, tl/usd and cpi\_ph), will be tried to explain with some tests and statistics. According to previous literatures that is examined, what can be expected is significantly negative relationship or effect on dependent variable. The statistical package which is called Eviews is used for econometric analysis.

##### 5.1. Descriptive Statistics

(Table 5.1.1)

	LPH	LAEPC	LTL_USD
Mean	2.380229	2.835425	0.293907
Max	2.782838	2.958033	0.803926
Min	2.004106	2.707272	0.068348
Std. Deviation	0.194843	0.056879	0.176336

Table 5.1.1 : Descriptive Statistics of the Data

The number of observations is 168 which consists of the months between Jan 2005 and Dec 2018. The interpretation of the descriptive statistics is also critical because the values in the standard deviation for each variable are not even close to the mean values except the exchange rate. However, all of them are quite lower than their means too. What that means is in the dataset almost all the data is quite close to the mean and almost all independent variables are floating which means widely spread out over the regression line. For the exchange rate, there are obvious fluctuations when the maximum and minimum values are checked.

(Table 5.1.2)

Dependent Variable : LAEPC (Average expenditure per tourist)  
Method : OLS ( JAN 2005 – DEC 2018 )

Variables	Coefficient	Std. Error	T-statistics	Probability
C	2.994440	0.099961	29.95615	0.0000
LTL_USD	-0.160530	0.0503060	-3.025421	0.0029
LPH	-0.046985	0.048020	-0.978428	0.3293

- R-Squared 0.423075
- Adjusted R-Squared 0.416082
- F-Statistics 60.49963
- Prob(F-stat) 0.000000
- Durbin-Watson 0.591914
- Mean Dependent Var 2.835425

Table 5.1.2 : Obtained Values of Equation [EQ 1.0]

When the regression equation is generated, what expected it turned out to be real with the help of the data. As it can be seen on the table above (Table 5.1.2), the exchange rate volatility and inflation of package holidays have negative coefficients which can be interpreted that having a negative effect on the average expenditure per tourist. That result has supported by the values of T-statistics and F-statistics as well which makes them negatively correlated.

The probabilities had to be lower than %5 percent which is the significance level for the variables, except the inflation of package holidays, all the variables ensure the condition. On the other hand, the



adjusted R-squared is %41 which needs to be improved in order to be the good one. Lastly, according to Durbin-Watson statistics, there is a positive autocorrelation or serial correlation between the variables. On the table (Table 5.1.2), the value is 0.59 which needs to be 2.0 or close to 2.0 for the Durbin-Watson statistics. In order to fix the serial correlation, the Breusch-Godfrey Serial Correlation LM Test is made on two lags.

(Table 5.1.3)

Prob. of Chi-Square(2)= 0.0000

Degree of freedom = 163

Variables	Coefficient	Std. Error	T-statistics	Probability
C	0.033603	0.070795	0.474645	0.6357
LTL_USD	0.015694	0.037531	0.418170	0.6764
LPH	-0.016069	0.034008	-0.472517	0.6372
RESID(-1)	0.821334	0.077215	10.63695	0.0000
RESID(-2)	-0.164898	0.077536	-2.126728	0.0349

- R-Squared 0.510315
- Adjusted R-Squared 0.498299
- F-Statistics 42.46682
- Prob(F-stat) 0.000000
- Durbin-Watson 2.064855
- Mean Dependent Var 2.39E-17

Table 5.1.3 : Results after LM test

After the Breusch-Godfrey Serial Correlation LM Test, what can be pointed is Durbin-Watson statistics which is 2.06. That means the serial correlation is fixed by the help of the Lagrange Multiplier test. At the same time, improvement in the Adjusted R-squared is observed by around %8 and the probability of residuals are below the significance level as well. On the other hand, the probability of Chi-Square is 0.0000 which is lower than the significance level. So, the null hypothesis must be rejected which contains serial correlation.

In order to check the independent(explanatory) variables and their significance, the Wald test is going to be used. The method is making all the independent variables equal to each other and also making them equivalent to zero. If the test shows the parameters are not zero, the variables should be included in the model.

$$H_0 : \beta_1 = \beta_2 = 0 \quad (\text{NULL})$$

$$H_1 : \beta_1 \neq \beta_2 \neq 0 \quad (\text{ALTERNATIVE})$$

(Table 5.1.4)

Wald Test:  
Equation: Untitled

Test Statistic	Value	df	Probability
F-statistic	98332.99	(2, 165)	0.0000
Chi-square	196666.0	2	0.0000

Table 5.1.4 : Wald Test (F-Test) Results

Null Hypothesis: C(1)=C(2)=0  
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(1)	2.994440	0.099961
C(2)	-0.046985	0.048020

Restrictions are linear in coefficients.

The bigger the calculated chi-square value is, the more likely the sample does not confirm the expected frequencies and also, the probability of the null hypothesis is 0.0000 that is another way of understanding the importance of the parameters that have been used. So, what can be interpreted is the rejection of the null hypothesis is more likely and that makes the alternative one more reliable and reasonable.

(Figure 5.1.1)

(Figure5.1.2)

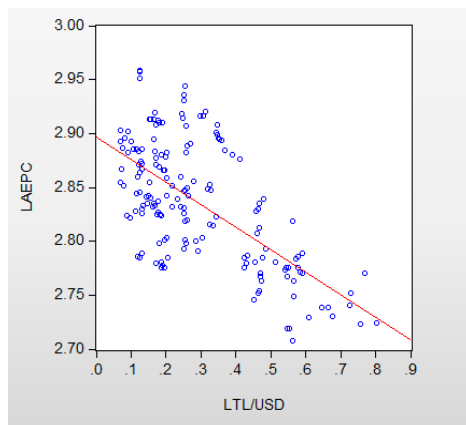


Figure 5.1.1 : The Average Expenditure per Tourist against the Exchange Rate Volatility

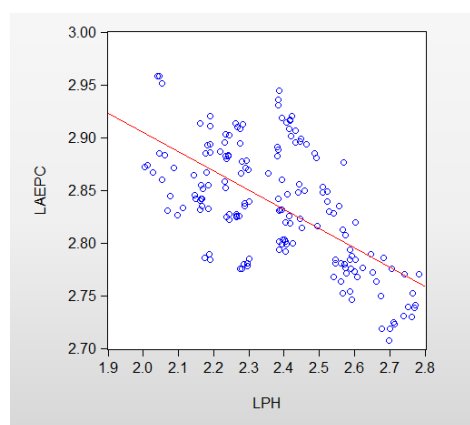


Figure 5.1.2 : The Average Expenditure per Tourist against the Inflation of Package Holidays

Both figures above (Figure 5.1.1) and (Figure 5.1.2) shows that the negative relationship of each independent variable on the average expenditure per tourist as can be expected previously. At the same time, as it has been discussed in the Descriptive Statistics part (5.1) the widely spread data can be observed in both figures clearly.

However, another issue with the time series analysis is generally having non-stationary data, which are unpredictable and cannot be modeled or forecasted. In order to convert the data into stationary one, the method might be using Augmented Dickey-Fuller Test which for a larger and more complicated series and that needs to be applied for each independent variables.

(Table 5.1.5)

Null Hypothesis: D(LTL\_USD) has a unit root  
Exogenous: Constant  
Lag Length: 1 (Automatic - based on SIC, maxlag=13)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-9.732232	0.0000
Test critical values: 1% level	-3.470179	
5% level	-2.878937	
10% level	-2.576124	

\*Mackinnon (1996) one-sided p-values.

Table 5.1.5 : Augmented Dickey-Fuller Test for the Exchange Rate

Table 5.1.6 : Augmented Dickey-Fuller Test for the Inflation of Package Holidays

(Table 5.1.6)

Null Hypothesis: D(LPH) has a unit root  
 Exogenous: Constant  
 Lag Length: 0 (Automatic - based on SIC, maxlag=13)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-9.994704	0.0000
Test critical values: 1% level	-3.469933	
5% level	-2.878829	
10% level	-2.576067	

\*MacKinnon (1996) one-sided p-values.

In both tables (Table 5.1.5) and (Table 5.1.6), that might have been observed that ADF Test applied for the unit root in 1<sup>st</sup> differences with the maximum lag of 13 and the results were highly significant. As it can be seen in the Null Hypothesis for each independent variable what consists of is having a unit root. In the alternative, the opposite, not having unit root is valid. The probability values for both independent variables are in the rejection area and also, the absolute value of each t-statistics needs to be lower than the absolute value of ADF test t-statistic. What can be pointed here is even for %1 significance level, the null hypothesis needs to be rejected.

## 6.Conclusion

To sum up, all those information that have covered, the paper has investigated the impact of the exchange rate and inflation of package holidays on average expenditure per tourists in Turkey. Particularly, the analysis has covered the period of 2005 – 2018 on a monthly basis. In order to show the correlation or the impact on the specific sector by the help of Eviews, the OLS method is used. The empirical estimation has contained a couple of tests to make the analysis useful and consistent. Such as Walde, LM, and ADF. After the results have shown up, the expectations on the variables turned out to be real as it can be examined in the Literature Review (part 3). The empirical results have stated that the exchange rate volatility and the inflation of package holidays have a negative and statistically significant effect on the average expenditure per tourist.

Those findings can be interpreted as the explanation of the chaotic environment for Turkish households and the capital owners. Especially, private sector debt own by the financial institutions and non-financial ones is getting bigger, unless nobody takes action. The big part of the responsibility is belongs to the central bank, government and also, the Banking Regulation and Supervision Agency (BDDK) for this chaotic environment. Because their actions have ended up the situation at that point. The chronic current account deficit and higher inflation have caused the higher depreciation in the lira which had a direct effect on FDI (foreign direct investment) in a bad way though. In other words, it is a vicious circle for the whole economy. As we have seen for the second variable of the model which is

the inflation of the package holidays and the general inflation threaten the stability and cause currency depreciation.

The dependency of short term gains has become a serious deal for the country however the solution is not that far. At least for that particular sector, tourism. Because what is observed in the introductory part was the tremendous potential of Turkey in terms of the places to visit by foreign and citizen visitors. Those responsible institutions and government may create better policies for the sake of their citizens and for the potential of the tourism sector. By giving concession from other sectors such as construction which is filled with rent-seeking behavior, the concerns of foreign visitor need to be more focused and solved. That also brings the qualification for the workers of the sector and may create a higher markup rate for the businesses. Another issue is the unbalanced or unfair situation between the parts of Turkey more specifically, the east and west. According to R. Mundell's theory, the countries that use the same Central bank and have the same currency, need to follow 4 criteria. They are labor and capital mobility over the country or region, centralize budget control and similar business cycles. Apparently, Turkey doesn't meet three of the criteria which causes more problems for the people.

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